

three R¹'s for (R¹)₃ is an aromatic hydrocarbon group having from 6 to 30 carbon atoms; (2) three R¹'s for (R¹)₃ are all hydrocarbon groups each having at least one carbon atom; (3) three R¹'s for (R¹)₃ are all aromatic hydrocarbon groups each having from 6 to 30 carbon atoms, preferably phenyl groups; (4) R² is an alkyl group having at least 2 carbon atoms. More concretely, the most preferred combination is (C1) of triphenylmethyl alcohol and (C2) of triisobutylaluminium.

(D) Alkylating agent:

The catalyst of the invention for production of olefin-styrene copolymers optionally contains an alkylating agent. Various types of alkylating agents are known and are usable in the invention, including, for example, alkyl group-having aluminium compounds of a general formula (12):

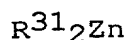


wherein R³¹ and R³² each represent an alkyl group having from 1 to 8, preferably from 1 to 4 carbon atoms; X represents a hydrogen atom or a halogen atom; 0 < m ≤ 3, but preferably m is 2 or 3, most preferably 3; 0 ≤ n < 3, but preferably n is 0 or 1;

alkyl group-having magnesium compounds of a general formula (13):



wherein R³¹ has the same meaning as above; and alkyl group-having zinc compounds of a general formula (14):



(14)

wherein R^{28} has the same meaning as above.

Of these alkyl group-having compounds, preferred are alkyl group-having aluminium compounds; and more preferred are trialkylaluminium compound and dialkylaluminium compounds. Concretely, they include trialkylaluminums such as trimethylaluminium, triethylaluminium, tri-n-propylaluminium, triisopropylaluminium, tri-n-butylaluminium, triisobutylaluminium, tri-t-butylaluminium, etc.; dialkylaluminium halides such as dimethylaluminium chloride, diethylaluminium chloride, di-n-propylaluminium chloride, diisopropylaluminium chloride, di-n-butylaluminium chloride, diisobutylaluminium chloride, di-t-butylaluminium chloride, etc.; dialkylaluminium alkoxides such as dimethylaluminium methoxide; dimethylaluminium ethoxide, etc.; dialkylaluminium hydrides such as dimethylaluminium hydride, diethylaluminium hydride, diisobutylaluminium hydride, etc. Further mentioned are dialkylmagnesiums such as dimethylmagnesium, diethylmagnesium, di-n-propylmagnesium, diisopropylmagnesium, etc.; dialkylzincs such as dimethylzinc, diethylzinc, di-n-propylethylzinc, diisopropylzinc, etc.

2. Method for producing catalyst:

(1) Order of contacting constituent components:

To produce the catalyst of the invention, the order of contacting the constituent components with each other is not specifically defined. For example, the components may be contacted with each other in the following manner.

(i) For producing the catalyst comprising the component (A), the component (B) and the component (C), for example, employable is <1> a method of first contacting the component (A) with the component (B), followed by further contacting it with the component (C); <2> a method of first contacting the component (A) with the component (C) followed by further contacting it with the component (B); <3> a method of first contacting the component (B) with the component (C) followed by further contacting it with the component (A); or <4> a method of contacting the three components all together.

When the catalyst contains the optional component (D), the order of contacting the component (D) with the other components is not specifically defined. For example, in the process of producing the catalyst, the component (A) may be contacted with the component (D); or the component (B) may be contacted with the component (D); or the component (C) may be contacted with the component (D). As the case may be, the components (A), (B) and (D) are first contacted all together with each other and then with the component (C).

(ii) For producing the catalyst comprising the component (A), the component (B), the component (C1) and the component